СЕКЦІЯ 1. ІНФОРМАЦІЙННІ ТА УПРАВЛЯЮЧІ СИСТЕМИ

IMPROVEMENT OF THE SIMULATION MODEL FOR FORECASTING THE DEVELOPMENT OF INDUSTRY IN UKRAINE

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The paper is devoted to the development of an improved version of the simulation model for forecasting scientific and technological development of economic activities in Ukraine.

The original simulation model [1] was developed in 2008 by a team of scientists from the National Technical University "KhPI" within the framework of the State program of forecasting scientific and technological development of Ukraine. The main drawback of the simulation model developed in 2008 is the limited number of simulated types of economic activity and the fact that each type of economic activity is modelled separately from the others, although in a real production system there is a large number of inter-industry interactions both within the system and with external markets.

The analysis carried out in the framework of the research showed that the problem of modelling inter-industry interactions has been thoroughly studied and a wide range of publications has been devoted to it. The basis of most publications is the model of the interbranch balance(so called Input-Output model), developed by W. Leontief[2] and his followers.

The improvement of the simulation model was implemented through the development of two new model’s units.Thus, to predict the process of production and distribution of products between economic activities, public sector, final consumption of the population, and foreign consumers the unit for modelling interbranch interactions has been integrated into the simulation model.

Another developed unit allows modelling production volume of import for intra-consumption (production needs) for each of the considered in the simulation model economic activity. The improved structure of the simulation model gives the ability to predict the development of industry in Ukraine not only in the context of its main industries but also in the context of economic activities that form the industries.

The improved simulation model is fully consistent with the new classifier of economic activities in Ukraine, which was developed on the basis of the international statistical classification of economic activities by the European Union (NACE). Thus, it is possible to use the improved simulation model to predict the development of the industry, not only in Ukraine but also in any European Union country.

The improved simulation model can be used by public authorities to build medium- and long-term forecasts for the development of both individual economic activities and the industry as a whole, as well as assessing the synergetic effect from the implementation of national-level projects on the state of Ukrainian industry.

References:

1. Kononenko, I. Forecasting of Results of the State-Level Projects Implementation [Text] / I.Kononenko, I. Babych // The 7th International Conference on Business, Management and Economics (ICBME 2011). E-Proceedings. – Cesme, Izmir, Turkey, 2011. – 15 p.

2. Leontief W. Input-Output Economics. New York, Oxford University Press, 1966. 257 p.